**Template | Unit Enhancement**

***EXPLANATION & ARGUMENTATION***

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**Background Information**

**Instructional Materials Title: Land and Forms, Grade 5-Earth Science**

**Publication Date: 2012-2013**

**Work Group Participants: Nani Castor-Peck, Ben Lawton, Cindy Adams, Ashley Toney, Kirsten Nesholm**

**Date Developed: 08/23/2013**

**High Leverage Lesson (Title and Page Number): Lesson 3: Modeling Rain on Land, p. 21; Lesson 4: Investigating Streams, p.27.**

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**Rationale**

· **Why we identified this particular lesson: We identified these lessons to focus on creating claims and evidence to practice the C-E-R Framework. Lesson 3 uses qualitative data and Lesson 4 uses both qualitative and quantitative data. Lesson 3 scaffolds for Lesson 4.**

* **Connections to NGSS Practices and WA Science Standards**
* **4-5ES2C Erosion; 4-5INQF Models; 2-3ES2B; 4-5 ES2C; 4-5INQF-Communicate**
* **NGSS 5-PS2-1; 5-LS1-1; 5-ESS1-1**

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***Explanation* Lesson Enhancement**

**Overview**

· **Identification of where within the High Leverage Lesson to insert enhancement: The enhancement can occur during class discussions in “engage and encounter” and “reflect and explain.”**

· **Key instructional strategies and tools needed: Visual of C-E-R Framework; Pair-Share about Claims and Evidence; Real World Example using engaging activity to highlight the C-E-R framework. Pages 25 and 27 Participant Notebook from 8/18/2013 (in Tools and Strategies).**

**Part 1: Lesson Modifications to Lead Up to *Explanation* Experience**

**Referring back to visual aides, integrate the C-E-R Framework in class discussions throughout the lessons. Focus on key terms such as “claim,” “evidence,” and “reasoning” to clarify understanding in students.**

**Part 2: *Explanation* Learning Sequence**

* **Real World Activity to engage students in the C-E-R Framework (e.g. Brett Favre QB)**
* **Reference the Water Cycle Lesson (connecting to prior knowledge) but corresponding to C-E-R framework at specific points (e.g. “Thinking about our discussion about the water cycle. Where does the rain go? Students would make “Claims” and Teacher would highlight the part of the C-E-R framework that the student is engaging).**
* **Set up and run investigation**
* **Class or group discussion using the C-E-R Framework. Students can show qualitative and quantitative data.**
* **Students make claims and support with evidence within their group and then with entire class as shared writing. Remove Shared Writing; leave scaffolding (visual C-E-R aide).**
* **Independent writing where students make conclusions about findings.**

**Part 3-A: Describe Assessment Task**

*Include the* ***question****,* ***evidence*** *students will use, and* ***scientific concepts*** *students will use in their reasoning.*

**Questions**: What Happens to Land When It Rains? And Where Does the Rain Go? (Lesson 3); What Is the Effect of Flowing Stream on Land? (Lesson 4)

**Evidence that Students Will Use**: Qualitative Evidence from Lesson 3: Color; Channels Created; Possibility of Lake Creation: Soil Movement-Deposition; Possible erosion. Quantitative Evidence from Lesson 4: Depth & Width of Stream Channel (“erosion”); Length, Width, & Depth of soil dropped at the end of stream channel (“deposition”); and depth of soil in graduated cylinder. Note: Students will need to include all pieces of data in their reasoning.

**Types of Reasoning Students May Use to Connect Their Evidence to Their Claim**: Prior Knowledge (possible student ideas/concepts: gravity, erosion, flooding, evaporation, water cycle); Scientific Observation of water moving; Data Analysis: Water reshapes land by eroding rock and soil and depositing them in other places.

**Part 3-B: Assessment Rubric**

Using the “Base Rubric for Scientific Explanation” (Table 6.5 on p. 126 of Designing Assessment Task and Rubrics) but modify the scale to 1 through 4 where 1 is “no claim, no evidence and no reasoning provided and 4 being “making an accurate and complete claim, etc.)

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| --- | --- | --- | --- |
|  | Claim | Evidence | Reasoning |
| 1 | No claim | No evidence | No reasoning provided |
| 2 | Makes an inaccurate claim | Provides 1-2 pieces of evidence | Provides reasoning that connects evidence to claim but it is insufficient |
| 3 | Makes an accurate but incomplete claim | Provides 3-4 pieces and/or some evidence may not be related to claim | Provides reasoning that connects evidence to claim. May include some scientific principles or justification for why the evidence supports claim, but it is not sufficient. |
| 4 | Makes an accurate and complete claim | Provides 5-6 pieces of evidence to support claim | Provides reasoning that connects the evidence to the claim, includes appropriate and sufficient scientific principles to explain why the evidence supports the claim |

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**Additional Information**

NOTES

· Information that will be useful when teaching this lesson

- Resources that will be useful: Non-fiction reading: “Erosion”; field trips: Islandwood; Brightwater; Cedar River Watershed

- Scaffolds that students will use